

disposing a sealing member that contacts to at least one of the first portion and the second portion so that a pressing portion of the sealing member creates a sealing engagement after connecting the first portion and the second portion.

REMARKS

By this Amendment, Applicants have replaced the Abstract with a substitute abstract of the disclosure, amended the specification, and amended claims 15, 19, and 23. No new matter has been added. Claims 1-23 are pending.

In the Office Action dated October 25, 2002, the Examiner objected to the Abstract of the Disclosure; rejected claims 4, 6, 10, 12, and 15-23 under 35 U.S.C. § 102(e) as being anticipated by Haney et al. (U.S. Patent No. 6,333,775); allowed claims 1-3, 7-9, 13, and 14; and indicated that claims 5 and 11 contain allowable subject matter.

As an initial matter, Applicants appreciate the Examiner's indication that claims 1-3, 7-9, 13, and 14 are allowed, and that claims 5 and 11 contain allowable subject matter.

With respect to the objection to the abstract of the disclosure, Applicants have replaced the originally-filed Abstract with a substitute Abstract of the Disclosure that complies with M.P.E.P. § 608.01(b). Therefore, Applicants respectfully request the reconsideration and withdrawal of the objection to the abstract of the disclosure.

In the Office Action, the Examiner rejected claims 4, 6, 12, and 15-23 under 35 U.S.C. § 102(e) as being anticipated by Haney et al. Applicants traverse the rejection of independent claims 4 and 10 because the Haney et al. reference fails to

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teach every element of those claims. With respect to the rejection of independent claims 15, 19, and 23, Applicants have amended those claims, and request reconsideration and withdrawal of the rejection based on the Haney et al. reference.

In order "[t]o anticipate a claim, the reference must teach every element of the claim." M.P.E.P. § 2131. Because the Haney et al. reference does not teach every element of independent claims 4 and 10, it cannot anticipate those claims.

Applicants' invention as recited in independent claim 4 is directed to a chamber seal device for sealing a wafer stage chamber assembly of a photolithography system for manufacturing semiconductor substrates. The wafer stage chamber assembly includes a first portion and a second portion. The chamber seal device includes at least one clamp channel to fasten at least a portion of a perimeter of a first flange of the first portion with a corresponding portion of a second flange of the second portion. The chamber seal device also includes at least one o-ring seal positioned in between and surrounding the perimeter of the first and second flanges to seal the wafer stage chamber assembly.

In the rejection statement, the Examiner asserts that "Fig. 3B of Haney shows a stage chamber assembly including a chamber portion with a first flange (cantilever portion 152), a top wall (flanged seal ring 156) with second flange, a clamp channel (aperture 182), and an o-ring (flanged seal ring 154)." Office Action at 2.

Notwithstanding the Examiner's interpretation of the Haney et al. reference, Applicants respectfully submit that Haney et al. actually discloses a seal assembly that connects an outer vertical wall 150 to an inner cantilever structure 160. The vertical wall includes a cantilever portion 152 which defines a hole through which an adjustable

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screw 170 is inserted. The adjustable screw 170 passes through a flanged seal ring 154 before engaging a threaded hole 158 in flanged cylindrical ring 156. A sliding vertical seal 166 covers the aperture 182 that is between the lower end of flanged seal ring 154 and flanged cylindrical ring 156.

Therefore, the Haney et al. reference fails to disclose at least a chamber seal device for sealing a wafer stage chamber assembly that includes at least one clamp channel to fasten at least a portion of a perimeter of a first flange of a first portion with a corresponding portion of a second flange of a second portion, and/or at least one o-ring seal positioned in between and surrounding the perimeter of the first and second flanges to seal the wafer stage chamber assembly.

First, aperture 182 of Haney et al. cannot reasonably be characterized as “a clamp channel [that] fasten[s] at least a portion of a perimeter of a first flange of a first portion with a corresponding portion of a second flange of a second portion.” In other words, aperture 182 fails to fasten any portion of the device of Haney et al. to another portion of the device, as it is clearly not a fastener. Moreover, the adjustable screw 170 clearly is not a channel. Second, the flanged seal ring 154 of Haney et al. cannot reasonably be characterized as an “o-ring seal positioned in between and surrounding the perimeter of the first and second flanges to seal the wafer stage chamber assembly.” Therefore, the Haney et al. reference fails to disclose at least those aspects of Applicants' independent claim 4.

Applicants' invention as recited in independent claim 10 is directed to a wafer stage chamber assembly of a photolithography system for manufacturing semiconductor substrates. The wafer stage chamber assembly includes a chamber

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portion having a first flange surrounding a perimeter of the chamber portion, a top wall having a second flange surrounding a perimeter of the top wall, at least one clamp channel to fasten at least a portion of the perimeter of the first flange with a corresponding portion of the second flange, and at least one o-ring seal positioned in between and surrounding the perimeter of the first and second flanges to seal the wafer stage chamber assembly.

For reasons similar to those discussed above with respect to claim 4, the Haney et al. reference fails to disclose every element of Applicants' independent claim 10. Therefore, the Haney et al. reference does not anticipate claim 10.

In the Office Action, the Examiner rejected claims 13-23 under 35 U.S.C. § 102(e) as being anticipated by the Haney et al. reference. As indicated previously herein, Applicants have amended independent claim 15, 19, and 23, rendering the Examiner's rejection moot. To the extent, however, that the Examiner may consider applying the above-mentioned rejections to the claims as amended, Applicants respectfully submit that such rejections would be improper, since the Haney et al. reference fails to teach each and every element of Applicants' amended independent claims 15, 19, and 23.

Applicants' invention as recited in independent claim 15 is directed to a chamber seal device that seals a chamber assembly having a first portion and a second portion. The chamber seal device includes a connecting member that connects the first portion and the second portion, the connecting member having a first member attached to one of the first portion and the second portion, and a second member attached to the other of the first portion and the second portion to slidably lock the first member. The

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chamber seal device further includes a sealing member that contacts to at least one of the first portion and the second portion. The sealing member including a pressing portion that creates a sealing engagement of the chamber after connecting the first portion and the second portion by the connecting member.

The Haney et al. reference fails to disclose at least a chamber seal device that includes a connecting member that connects a first portion and a second portion, the connecting member having a first member attached to one of the first portion and the second portion, and a second member attached to the other of the first portion and the second portion to slidably lock the first member. Therefore, the Haney et al. reference neither discloses nor suggests every element in amended independent claim 15.

Applicants' invention as recited in independent claim 19 is directed to a method for making a chamber assembly having a first portion and a second portion. The method includes connecting the first portion and the second portion via a U-shaped connecting member, and disposing a sealing member that contacts to at least one of the first portion and the second portion so that a pressing portion of the sealing member creates a sealing engagement of the chamber after connecting the first portion and the second portion.

Unlike amended independent claim 19, the Haney et al. reference fails to disclose or suggest at least a method for making a chamber assembly having a first portion and a second portion that includes connecting the first portion and the second portion via a U-shaped connecting member. For at least that reason, Applicants' independent claim 19 should be allowable over the Haney et al. reference.

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Applicants' invention as recited in independent claim 23 is directed to a method for creating a space surrounded by at least a first portion and a second portion. The method includes connecting the first portion and the second portion via a U-shaped connecting member, and disposing a sealing member that contacts to at least one of the first portion and the second portion so that a pressing portion of the sealing member creates a sealing engagement after connecting the first portion and the second portion.

For reasons similar to those discussed previously herein with respect to independent claim 19, the Haney et al. reference fails to disclose or suggest all of the elements of independent claim 23. Therefore, Applicants' independent claim 23 should be allowable over the Haney et al. reference.

Furthermore, the other cited references, Bisschops et al. (U.S. Patent No. 6,445,440), Miwa et al. (U.S. Patent No. 6,278,516), Ma et al. (U.S. Patent No. 6,042,121), and Kelly et al. (U.S. Patent No. 5,294,257), taken singly or in combination, fail to overcome the deficiencies of the Haney et al. reference.

Accordingly, Applicants submit that independent claims 4, 10, 15, 19, and 23 are allowable. Furthermore, Applicants submit that claims 5 and 6, 11 and 12, 16-18, and 20-22 are allowable by virtue of their dependency on claims 4, 10, 15, and 19, respectively, as well by their additional recitations of novel and non-obvious subject matter. Therefore claims 1-23 should be allowable.

Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims.

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If the Examiner believes that a telephone conversation might advance prosecution, the Examiner is cordially invited to call Applicants' representative at 571-203-2739.

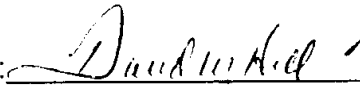
The Office Action contains numerous assertions relating to the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicants decline to subscribe automatically to them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: March 18, 2003

By: 
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APPENDIX TO THE AMENDMENT

IN THE SPECIFICATION:

Please amend the specification as follows:

Replace the paragraph beginning on page 8, line 10, and ending on page 8, line 21, with the following paragraph:

As illustrated in Figs. 1 and 2, a wafer stage chamber assembly 100 for use in manufacturing semiconductor substrates comprises a chamber frame 102 to enclose a wafer stage device 66 (shown in Fig. 8), and a plurality of chamber walls or panels 104, 106, 108, 110, attached to the chamber frame. Chamber frame 102 and chamber walls 104, 106, 108, and 110 construct a chamber portion 101. Wafer stage chamber assembly 100 also comprises a top wall 112 and a base frame 114 attached to the top and bottom sides 102A and 102B, respectively, of chamber frame 102. Chamber frame 102 has a first flange 148 surrounding an upper perimeter thereof. Similarly, top wall 112 has a second flange 122, corresponding and to interface with first flange 148, surrounding a perimeter of top wall 112. Detail of wafer stage chamber assembly 100 is disclosed in U.S. Patent [application] Application Serial [no. _____ (attorney reference no. 7303.0034, PAO358-US)]

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No. 09/759,218, filed January 16, 2001, the entire disclosure
of which is incorporated by reference.

IN THE CLAIMS:

Please amend claims 15, 19, and 23, as follows:

15. (Amended) A chamber seal device that seals a chamber assembly, the chamber assembly having a first portion and a second portion, the chamber seal device comprising:

a connecting member that connects the first portion and the second portion, the connecting member having a first member attached to one of the first portion and the second portion, and a second member attached to the other of the first portion and the second portion to slidably lock the first member; and

a sealing member that contacts to at least one of the first portion and the second portion, the sealing member including a pressing portion that creates a sealing engagement of the chamber after connecting the first portion and the second portion by the connecting member.

19. (Amended) A method for making a chamber assembly, the chamber assembly having a first portion and a second portion, the method comprising:

connecting the first portion and the second portion via a U-shaped connecting member; and

disposing a sealing member that contacts to at least one of the first portion and the second portion so that a pressing portion of the sealing member creates a sealing engagement of the chamber after connecting the first portion and the second portion.

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23. (Amended) A method for creating a space surrounded by at least a first portion and a second portion, the method comprising:

connecting the first portion and the second portion via a U-shaped connecting member; and

disposing a sealing member that contacts to at least one of the first portion and the second portion so that a pressing portion of the sealing member creates a sealing engagement after connecting the first portion and the second portion.

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CHANGES TO THE ABSTRACT:

A chamber seal device is provided to seal a wafer stage chamber assembly to isolate semiconductor substrates, a wafer stage device, and the process of making semiconductor wafers from an atmospheric condition, so that the resulted wafers have an improved quality and meet certain wafer manufacturing specifications. The wafer stage chamber assembly includes a wafer stage chamber, a top wall and a base frame. The wafer stage chamber assembly is supported by an apparatus frame of an exposure apparatus via a plurality of body supports. [Due to the limited access around the exposure apparatus, the chamber seal device of this invention provides a simple and quick mechanism to seal the wafer stage chamber assembly.] The chamber seal device includes one or more o-ring seals positioned in between and surrounding the perimeter of the wafer stage chamber and the top wall, or the wafer stage chamber and the base frame to seal the wafer stage chamber assembly. [The chamber seal device may include a plurality of pins surrounding a perimeter of the wafer stage chamber for insertion into a corresponding plurality of openings on the perimeter of the top wall or the base frame, and at least one keyhole strip for insertion into the pin to slidably lock them. Alternatively, the chamber seal device may include at least one clamp channel to fasten the perimeter of the wafer stage chamber with the perimeter of the top wall or the base frame.]

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